

Field Report

Shenandoah National Park

■ 1.0 Summary

Shenandoah National Park is often described as a “National Park,” in the traditional “western” sense, located in the eastern United States. This is very much of a linear park, stretching over a distance of 70 air miles (117 km) along the crest of the Blue Ridge Mountains, from Front Royal, Virginia on the north to Waynesboro, Virginia on the south. It encompasses a total area of approximately 300 square miles (777 km²).

As described on page 5 of the Park’s General Management Plan, “Shenandoah National Park is the northeast corner of a ten-unit sequence of national parks and forests, which cover a distance of nearly 700 miles (1,125 km) and an area of 4.8 million acres (1.9 million hectares) in the southern Appalachian Mountains. More specifically, Shenandoah National Park is the northern park of three interconnected units of the NPS – the Great Smoky Mountains National Park, Blue Ridge Parkway, and Shenandoah. These units of the NPS were initiated between 1925 and 1936 to provide public access and enjoyment of the natural and cultural values of the southern Appalachians.”

Based upon conversations with park staff and other public agency staff, and limited field observations, it appears that the majority of the transportation problems facing the Park are not of the type that readily lend themselves to resolution by the implementation of an Alternative Transportation System (ATS). This does not mean to imply that ATS does not have a role to play at Shenandoah National Park, but rather that this role will likely be somewhat more limited than that identified at some other locations.

There appear to be only a few feasible ATS alternatives that could be potentially implemented at Shenandoah National Park in the near term. These include the following:

- Expansion of the existing Rapidan Camp visitor shuttle operation from three days a week to five days a week. In acknowledgment of resource conservation and protection concerns, the number of tour trips operated should not exceed two per day.
- Explore the economic feasibility of a formalized NPS and concessionaire employee transportation program utilizing vans or small buses to connect adjacent communities with the Park. It is suggested that NPS staff investigate the possibilities for Virginia Department of Transportation (VDOT) and/or Virginia Department of Rail & Public Transportation (DRPT) staff to provide assistance with these efforts.
- Explore the economic feasibility of a seasonal ATS service to provide connections between the Park and the Shenandoah Valley and Piedmont regions for park visitors.

This service would facilitate interaction between the Park and the other attractions in the surrounding communities.

- The expanded use of Intelligent Transportation System (ITS) technologies to provide enhanced visitor information should continue to be investigated by NPS staff in concert with VDOT and the other participants in the “Travel Shenandoah” program.

■ 2.0 Background Information

2.1 Location

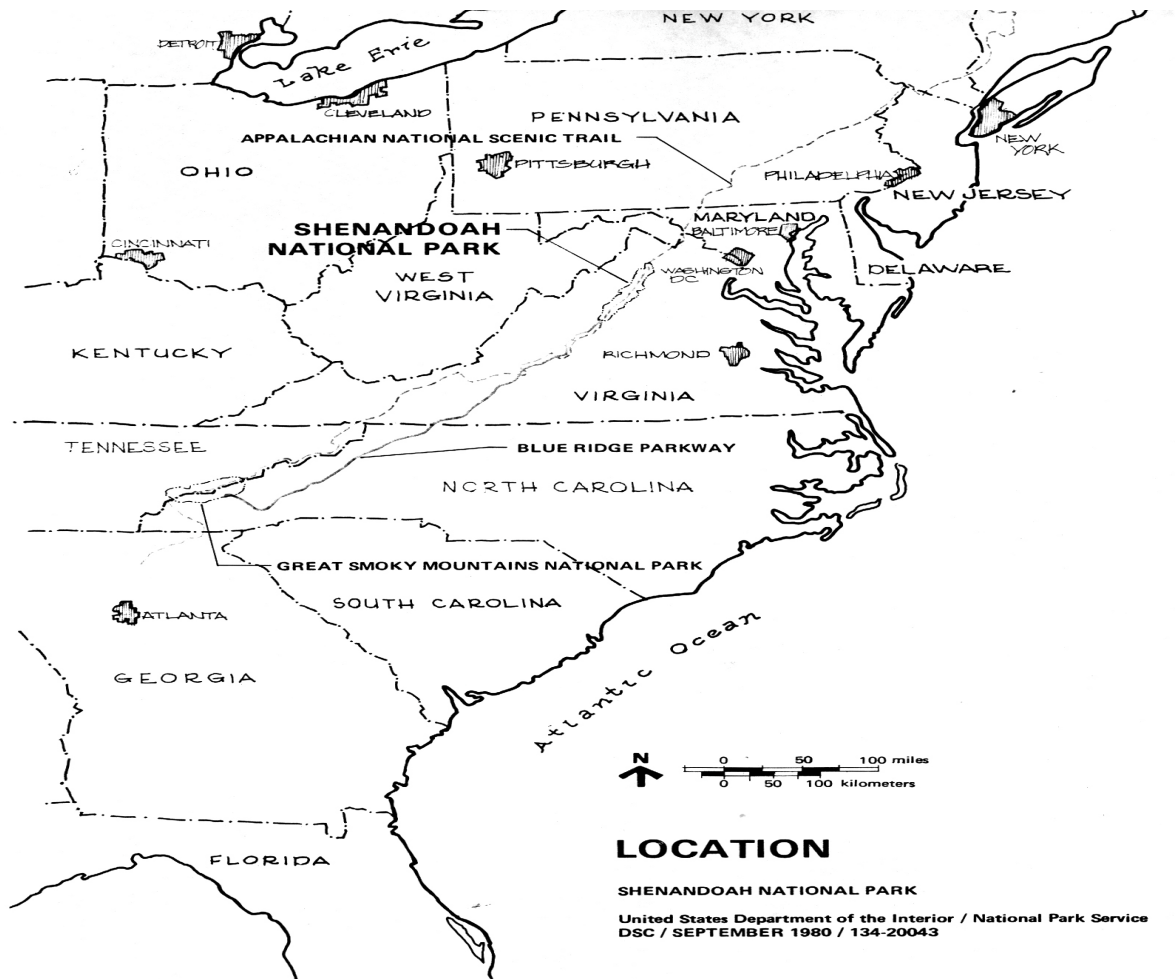
Shenandoah National Park is located in the northwestern part of the Commonwealth of Virginia. This is very much of a linear park, with the Skyline Drive stretching over a distance of 105-miles (175 km) along the crest of the Blue Ridge Mountains, from Front Royal, Virginia on the north to Waynesboro, Virginia on the south (See Figure 1). It encompasses a total area of approximately 300 square miles (777 km²).

2.2 Administration and Classification

Shenandoah National Park is a multi-attraction unit of the NPS.

2.3 Physical Description

Shenandoah National Park is often described as a “National Park,” in the traditional “western” sense, located in the eastern United States. The Park extends for a distance of 70 air miles (117 km) along the crest of the Blue Ridge Mountains, and encompasses an area of approximately 300 square miles (777 km²). As described on page 5 of the Park’s General Management Plan, “Shenandoah National Park is the northeast corner of a ten-unit sequence of national parks and forests, which cover a distance of nearly 700 miles (1,125 km) and an area of 4.8 million acres (1.9 million hectares) in the southern Appalachian Mountains. More specifically, Shenandoah National Park is the northern park of three interconnected units of the NPS – the Great Smoky Mountains National Park, Blue Ridge Parkway, and Shenandoah. These units of the NPS were initiated between 1925 and 1936 to provide public access and enjoyment of the natural and cultural values of the southern Appalachians.”

Figure 1. Regional Location Map

As summarized in the Park's General Management Plan, the history of its establishment is as follows:

"Interest in preserving areas in the southern Appalachian Mountains began in the late 19th century. The first official mention of a national park in this area can be found in legislation introduced in Congress in 1901. Proposed again in 1903, the idea was dropped in favor of forest preserves and concluded in the passage of the Weeks Act in 1911, which provided for national forests in the eastern United States.

"The national park idea resurfaced in the 1923 annual report of the NPS where Director Mather wrote: 'There should be a typical section of the Appalachian range established as a National Park with its native flora and fauna conserved and made accessible for public use and its development undertaken with federal funds.

"In 1924 the Southern Appalachian National Park Committee was appointed by the Secretary of the Interior to investigate the possible existence of sites suitable

for the establishment of such a park. The result of the committee's work was an act (43 Stat. 958) passed in February 1925 that directed the Secretary of the Interior to determine the boundaries and areas within the Blue Ridge Mountains of Virginia that could be recommended as Shenandoah National Park and such portion of the Smoky Mountains lying in Tennessee and North Carolina that could be recommended as Smoky Mountains National Park. Within the next year, considerable public support developed within the Commonwealth of Virginia for a large national park in the Blue Ridge Mountains.

“In May 1926, another act (44 Stat. 616) was passed providing for the establishment of Shenandoah National Park. Its major provisions were that the lands could be secured by the United States only by public or private donation, that the tract include approximately 521,000 acres (210,800 ha), and that the minimum area to be administered be 250,000 acres (101,150 ha). The citizens of the Shenandoah Valley campaigned to raise the money to purchase the necessary land, which consisted of over 4,000 separate tracts. The Virginia General Assembly provided funds and passed a special law for the acquisition of the land to be donated to the NPS. The task proved complicated and costly, so Congress reduced the minimum requirements to 160,000 acres (64,735 ha). By 1935 the deeds were ready, and the Commonwealth of Virginia donated approximately 176,500 acres (71,400 ha) to the Department of the Interior. On July 3, 1936, President Franklin D. Roosevelt dedicated Shenandoah National Park ‘to the present and future generations of America for the recreation and recreation which we shall find here.

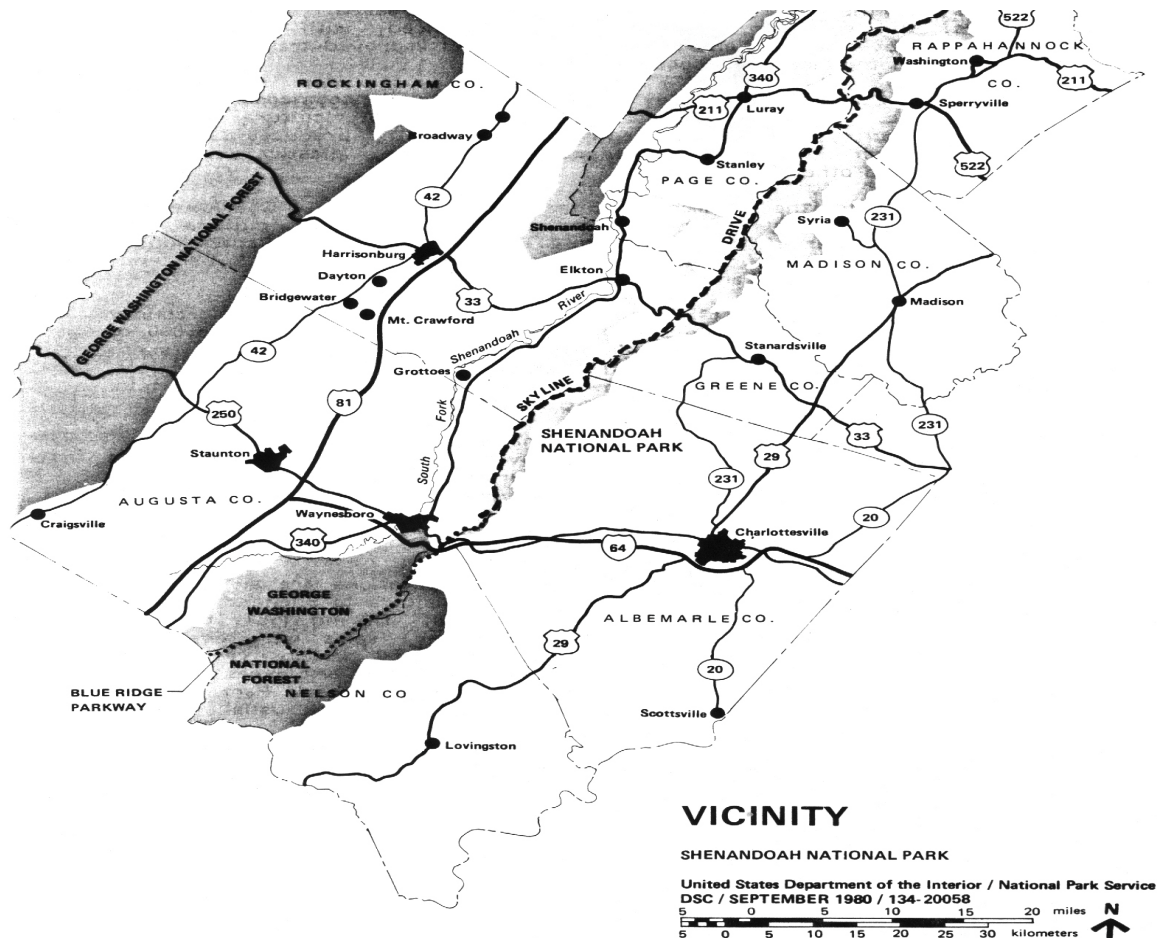
“When conceived and authorized, the Park was envisioned as a substantive area of plant and animal life in precolonial primitive conditions. But in fact, Shenandoah bore little resemblance to that vision when it was dedicated. The establishment of the Park did, however, offer protection to what remained of the plants and animals, and with favorable climate and inherent vitality, nature began its restorative process. Evidence of the settlement period has faded, and the Park is now about 95 percent forested. Many of the animals that had been greatly reduced or extirpated have returned. So complete has been the regeneration in four decades that in 1976 nearly 80,000 acres (132,370 ha) were deemed of suitable primitive character to be included in the National Wilderness Preservation System.

“While Shenandoah National Park was intended to be a sample of the southern Appalachian portion of primitive America, it was also intended that the available resources be used and enjoyed by greater numbers of visitors each year. In underscoring this point, Congress appropriated funds to begin the construction of Skyline Drive in 1931 – four years before the establishment of the Park on December 26, 1935.

“Construction of the Appalachian Trail also started before the Park was established. The 101-mile (168 km) portion of the trail within the Park was constructed between 1926 and 1936. The entire 2,100-mile (3,380 km) trail from Maine to Georgia was designated the Appalachian National Scenic Trail in 1968.”

Skyline Drive is clearly the heart of the Park (see Figure 2). This two-lane park road extends for 105 miles (175 km), from the North Entrance Station at Front Royal along U.S. Route 340 to the South Entrance Station (Mile 105.0) near I-64 and U.S. Route 250 at Rockfish Gap near Waynesboro, Virginia. At the Rockfish Entrance Station, the Skyline Drive connects to the Blue Ridge Parkway. Additional entrance stations are provided at Thornton Gap (Mile 31.5) on U.S. Route 211 east of Luray, and at Swift Run Gap (Mile 65.7) on U.S. Route 33 east of Elkton. Numerous parking overlooks provide panoramas of the Piedmont to the east and the Shenandoah Valley to the west.

Figure 2. Park Map



The headquarters of Shenandoah National Park is located three miles west of Thornton Gap and four miles (6.7 km) east of the Town of Luray along U.S. Route 211, and is open year-round during business hours, Monday through Friday. Park visitor centers are located at Dickey Ridge (Mile 4.6), the Byrd Visitor Center at Big Meadows (Mile 51), and Loft Mountain (Mile 79.5). These facilities are open between April and October/November of each year.

NPS operated family campgrounds are located at Mathews Arm (Mile 22.2), Big Meadows (Mile 51), Lewis Mountain (Mile 57.5), and Loft Mountain (Mile 79.5). Picnic grounds are

provided at seven locations along the Skyline Drive. These provide tables, fireplaces, drinking fountains, and restrooms. Other services, including food and gifts, are available at Elk Wallow, Panorama, and Loft Mountain. Accommodations include overnight lodging and restaurants at Skyland (Mile 41.7) and Big Meadows (Mile 51.2), plus cabins that can be rented at Lewis Mountain (Mile 57.5). These facilities are all open during summer months (May through October), some are open in the spring and fall, and most are closed during the period between December and March. These facilities are operated under a concessions contract with the NPS by ARAMARK.

Another park concessionaire, the Potomac Appalachian Trail Club (PATC), operates six trail cabins for hikers and maintains huts for Appalachian Trail hikers. Trails totaling more than 500 miles (833 km) make much of the Park accessible to hikers. This includes a 101-mile (168 km) segment of the Appalachian Trail that runs the length of the Park. The PATC is a park partner for maintenance of the Appalachian Trail and some other part trails and for maintenance and operation of Appalachian Trail huts.

As noted in the Park's FY 1998 – 2002 Strategic Management Plan:

“Skyline Drive and the associated developed areas at Simmons Gap, Lewis Mountain, Big Meadows, Skyland, Piney River, Pinnacles, Dickey Ridge, and park headquarters are listed on, or (have been) determined eligible for, the National Register (of Historic Places). This national significance is their association with the Civilian Conservation Corps, the Works Progress Administration and several hundred architectural and landscapes architectural structures and features that are highly representative of their type.”

In addition, Rapidan Camp, the “Summer White House” of Herbert and Lou Henry Hoover during the Hoover presidency from 1929 – 1933, is a National Historic Landmark, and retains significant rustic architectural and landscape architectural structures and features. Three remaining buildings and the cultural landscape are being restored.

2.4 Mission and Goals of Shenandoah National Park

The mission and goals of Shenandoah National Park are summarized in the following excerpt from the “FY 1998 – 2002 Strategic Management Plan”:

“Shenandoah National Park restores, where appropriate, and maintains the park as a functioning ecosystem that is the outstanding example of the Blue Ridge/Central Appalachian biome. The Park provides present and future generations outstanding opportunities to experience “recreation and re-creation” by driving the Skyline Drive, walking the Appalachian Trail and related trails, or experiencing the backcountry wilderness areas. The Park preserves the fabric and tells the stories of the people and the land both before the Park was established and as a result of the establishment of the Park.”

2.5 Visitation Levels and Visitor Profile

Following the end of World War II, visitation steadily increased over the next three decades, peaking at a value of just above two million in 1977. Over the past two decades, annual visitation levels have decreased somewhat and have stabilized in recent years at a level of approximately 1.6 million persons annually.

Park visitation is heaviest between April and November, with the highest monthly visitation occurring during the fall foliage season in October. Over the ten-year period from 1989 to 1998, total annual visitation averaged 1,788,798 persons. Of this number, 349,527 persons (about 19.5 percent) visited the Park during the month of October. The next highest monthly visitations occurred during July (259,645 persons or about 14.5 percent) and August (255,468 persons or about 14.3 percent). These three months alone thus account for approximately 48.3 percent of total annual park visitation.

While summer visitation tends to be spread throughout all the days of the month, visitation during the October peak is concentrated more heavily on the weekends, when day-trippers from the nearby metropolitan areas predominate.

The most recent survey of park visitors took place during 1992. Some of the key findings from this survey are as follows:

“The most distinguishing characteristics of park visitors is their relatively high education attainment and income – over 50 percent of respondents report having a college degree, and nearly half of all respondents have incomes greater than \$50,000 per year. Most visitors come in family groups, with the typical group size being two persons. Less than 10 percent of Park visits originate from the 10 counties surrounding the Park, but over one-third of visitors are from Virginia. Out-of-state visitors tend to originate from Maryland, Pennsylvania, or New York. International visitors account for two percent of park visitation.”

The results of this survey determined that the Park was the primary destination for most visitors during the winter, spring, and fall months. However, during the summer months, slightly less than 50 percent of visitors indicated that the Park was their primary trip destination. Throughout the year, more than two-thirds of visitors indicated that the most important reason for visiting the Park was to “enjoy the place itself.”

The survey determined that most visitors (about 73 percent) spend one or more nights away from home on their trips to Shenandoah National Park and Skyline Drive. Approximately 18.5 percent of visitors stay overnight inside the Park, while 53 percent reported staying in locations outside of the Park. The most common activities participated in by visitors, listed in decreasing order of frequency of occurrence, are as follows:

- Sightseeing along the Skyline Drive;
- Wildlife observation/nature study;
- Photography;
- Spending time in visitor centers;

- Walking for pleasure;
- Day hiking; and
- Picnicking.

Shenandoah is very much of a “drive-through” type of park. Well over half of all visitors reported that they did not participate in any park activity beyond “Sightseeing Along Skyline Drive.” Similarly, 58.4 percent of the visitors surveyed indicated that they did not reenter the Park after exiting.

During discussions with representatives of the park’s lodging and food services concessionaire – ARAMARK Corporation – it was noted that while bus tours are still concentrated in the months of September and October, the type of bus tour has been changing in recent years. During the 1980s, it was not uncommon to record 8,000 annual room nights in the in-park lodges generated by bus tour groups. In 1998, this number had declined to approximately 2,800 annual room nights.

■ 3.0 Existing Conditions, Issues and Concerns

3.1 Transportation Conditions, Issues and Concerns

Based upon conversations with park staff and other public agency staff, and limited field observations, it appears that the majority of the transportation problems facing the Park are not of the type that readily lend themselves to resolution by the implementation of an ATS. This does not mean to imply that ATS does not have a potential role to play at Shenandoah National Park, but rather that this role will likely be somewhat more limited than that identified at some other locations.

With the vast majority of park visitors traversing all or a portion of the Park via a one-way trip along Skyline Drive in their personal vehicles, it is highly unlikely that it would be possible to divert very many of these persons onto an ATS operation. In order to do so, visitors would have to leave their car at a parking area near an entrance station, board some type of shuttle bus, drive along a portion of Skyline Drive in this vehicle and then return to their vehicle. Given the distances and travel time involved to provide this service over any significant portion of the 105-mile total length of Skyline Drive, this appears to be impractical.

Employee Transportation Needs

However, in discussions with park staff and representatives of ARAMARK Corporation, several other transportation problems that might be able to be addressed by an ATS system were identified. The transportation of employees to and from the Park is a concern of both the NPS and ARAMARK. The combination of extremely low unemployment rates in the region and the distances involved between the Park and residential communities in

the Valley and Piedmont regions have created problems in securing sufficient staffing. This is particularly a concern during the peak summer and early fall months.

For example, ARAMARK's minimum full-time staffing level of 20 persons during winter months expands to a need for approximately 280 personnel during the summer months. The NPS faces similar problems with its summer temporary employees, only some of whom can be accommodated by in-park staff housing. While some informal carpooling currently takes place, it appears that an expanded employee ridesharing/transportation program would be beneficial for both NPS and ARAMARK employees.

Rapidan Camp Shuttle

The NPS has recently initiated a limited ATS operation as a resource conservation and visitor management strategy. In the summer of 1999, the Park began operating what it terms the "Hoover Shuttle". This is a single 12-passenger van leased from the General Services Administration and used to transport visitors between the Byrd Visitor Center at Big Meadows and Rapidan Camp, the "Summer White House" for President Herbert Hoover. Rapidan Camp is located about four miles (seven km) off of Skyline Drive at the end of a seven-mile long (12 km), narrow gravel surfaced road. At the request of local residents, the Park began "Hoover Days" at this site during the mid-1970s to allow visitors to this historic site. During a one to two-day long period, as many as 2,000 persons per day would visit Rapidan Camp. This level of visitation began to degrade the site's resources, even after the Park limited access to use of one of two old park-owned school buses.

The Park has now implemented a "reservation only" visitation policy for Rapidan Camp. Two tours are offered each day, on Wednesdays, Thursday, and Sundays during the summer and early fall months. No more than 12 persons are allowed on any tour. While the advance reservation system appears to be working satisfactorily, with every trip filled to capacity, the demand to visit this site exceeds the current system capacity. The NPS would like to expand this service to offer trips five days a week. This would allow two days a week to be set aside for repair and maintenance of the buildings and vehicles. Park staff noted that the current GSA provided vehicle is not ADA compliant.

Skyline Drive Tours and Trailhead Shuttles

Park staff also noted the potential for interpretative tours along Skyline Drive to allow campers or visitors staying in park lodging to obtain a better appreciation of the park and its resources without having to drive their own vehicles. This was also noted as a way in which to enhance park access by elderly and disabled visitors.

Step-on ranger guides are available to provide interpretive services on tour buses on a reservation basis as staff availability permits. On average, only one ranger trip is provided each week during the summer and fall seasons. This is offered as a one-way trip from the Swift Run Gap Entrance Station (U.S. Route 33) north to Skyland Lodge.

The potential was also noted for internal park transportation of long-distance hikers and bikers. The provision of access by long-distance hikers and bikers to nearby communities

such as Front Royal and Luray was also cited. Anecdotal information indicates that such services are being provided on an ad hoc, informal basis today.

During conversations with local planning officials and economic development advisors, the value of assisting visitors staying in Valley and Piedmont area accommodations to visit Park sites and visitors staying in Park campgrounds and lodges to visit other local attractions outside the Park without having to use their personal vehicles was noted.

A non-ATS issue was identified relative to the need for improved hiking trailhead access from VDOT secondary roads along the park boundaries. The need for improved VDOT/NPS coordination was noted to define how best to resolve this issue of improved park access for hikers and fishermen. VDOT staff also indicated that they are examining all of their dead-end roads in the region to seek to identify locations where additional right-of-way would be required to allow larger maintenance equipment to turn around. It was suggested that these locations could also serve as small-scale trailhead parking areas during the peak summer park visitation periods.

Park-and-Ride Lots

VDOT staff noted the presence of several commuter park-and-ride lots in the vicinity of the Park that may have the potential for use by visitors or park employees. These include a parking lot at the interchange of U.S. Route 211 and U.S. Route 340 on the north side of Luray, a lot at the interchange of U.S. Route 340/522 and I-66 on the north side of Front Royal, and a lot at the interchange of U.S. 33 and U.S. 340 at Elkton. While the majority of the spaces in these parking areas are used by commuters during weekdays, they are generally empty on weekends, and their availability could be publicized for use by park visitors and employees during these low-demand periods.

ITS

In cooperation with the local jurisdictions, VDOT is in the early stages of implementing the Shenandoah Valley Advanced Traveler Information System Demonstration Project. This project, known as “Travel Shenandoah,” is a public-private partnership between VDOT, the Shenandoah Valley Travel Association, the Virginia Tourism Corporation, Shenandoah National Park, the Center for Transportation Research at Virginia Polytechnic and State University, and the Shen Tel Service Company. The project is designed to assist visitors to the Shenandoah Valley with pre-trip planning, traveler information services when the visitor arrives in the Valley, and travel alerts due to road incidents, road closures, and inclement weather. Shenandoah National Park staff have participated in this effort and view it as a very positive way in which to provide information to park visitors. The need was also noted by several persons interviewed for the provision of improved directional signing to Shenandoah National Park from the west side of the Park (the I-81 corridor) similar to that provided from the east side of the Park.

3.2 Community Development Conditions, Issues and Concerns

Shenandoah National Park appears to have established very strong and supportive relationships with the adjacent private landowners, the local gateway communities and surrounding counties, and the Commonwealth of Virginia. While there appear to be opportunities for expanded coordination and communication to address common issues and concerns, no significant communication problems were identified.

The Park and the surrounding communities both support the need to control the type and amount of development outside of the Park boundaries in order to preserve the vistas from Skyline Drive east to the Piedmont and west to the Shenandoah Valley. The adjacent communities acknowledge the symbiotic relationship that they share with the Park, and the high degree to which their economic success is tied to a continuing high level of park visitation.

3.3 Natural or Cultural Resource Conditions, Issues and Concerns

The Park's currently adopted GMP (1983) and subsequent studies such as the 1997 *Strategic Park Management Plan* and the *Resource Management Plan* (September 1998) explicitly recognize the need to preserve and enhance both the natural and man-made elements of the Park. The Park contains both outstanding natural areas and more recent man-made areas meriting special designation. Natural areas include the Shaver Hollow watershed that was designated as the first Research Natural Area (RNA) in a NPS unit in the eastern deciduous forests in 1985, and approximately 79,600 acres of designated wilderness area.

Skyline Drive and the associated developed areas at Simmons Gap, Big Meadows, Piney River, Pinnacles, Dickey Ridge, and the park headquarters building were listed on the National Register of Historic Places in 1997. Rapidan Camp was designated a National Historic Landmark in 1986.

The following summary of natural and cultural resources within the Park is excerpted from the Park's *Resource Management Plan* (September 1998):

“The geology of the section of the Blue Ridge Mountains located within Shenandoah National Park represents one of the most outstanding natural features of the area. The exposed formations are among the oldest in North America. The geological history of the Park is the subject of frequent investigations by both eminent geologists and university students.

“Shenandoah (National Park) represents one of the nation's most diverse botanical reserves. The documented flora of the Park includes nearly 1,400 species of plants, many of which are found along the forest edge, on exposed rocky mountain summits, and in meadow or bog areas...The Park's large area, range of elevations, varied topography, and assemblage of substrates provides diverse conditions suitable for more rare species and significant natural communities than any other Mid-Atlantic region national park unit.

“Those who explored the Shenandoah Valley and the Blue Ridge Mountains in the early 1700s reported an abundance and variety of animals. As European settlers cleared the land, introduced exotic species, and hunted native animals, both abundance and variety decreased. An unknown number of native species disappeared from the area, while the populations of many other species dwindled...Since the establishment of the Park, some extirpated species have been successfully reintroduced into the recovering forest, and some have returned without human aid.

“The number and distribution of white-tailed deer in the Park has not been extensively studied, however, a rough estimate from the early 1990s placed the total Park population at about 6,000 animals.

“Wild turkeys have become a common species, having multiplied and filled all available habitat.

“Black bear were able to naturally reestablish themselves at Shenandoah as the land became reforested...Present population estimates are thought to be approximately 250-300 animals and appear to be stable, although the Park is presently not monitoring bear populations.

“Bobcats, nearly extirpated by 1936, seem to have successfully repopulated the area. Although considered a threatened species by some neighboring states, they are common in the Park.

“Over 200 species of resident and transient birds are known to use the Park’s habitat. Due to the Park’s location along the crest of the Blue Ridge and the extent of the forested habitat, Shenandoah is critical habitat for neotropical migratory birds, both for nesting and as a travel corridor. Certain areas, such as open areas in Big Meadows, support species that can be found nowhere else in the Park.

“A systematic inventory of Park reptiles and amphibians has not been done, although several highly competent herpetologists have done extensive work in the Park and feel confident that most of the species of reptiles and amphibians have been identified. To date, 51 species have been found.

“Thirty species of fish have been recorded in Park waters.”

Clearly, Shenandoah National Park is an extraordinary complex ecosystem.

An issue of continuing concern is the air quality in and around the Park. As noted in the Park’s *Resource Management Plan*:

“Shenandoah and Great Smoky Mountains National Parks are widely regarded as the two Class I parks with resources most impaired by human-caused air pollution. In 1990, the Department of the Interior published a Preliminary Notice of Adverse Impact on Shenandoah’s visibility, streams, and vegetation

in the Federal Register. The Park's resources continue to be impacted by increased numbers of local and regional, urban and rural emission sources.

“Long-term monitoring and research of air quality and related values in the Park indicate this area has among the highest concentrations of airborne sulfates that impair visibility and acidic deposition that impacts aquatic systems in the United States. Shenandoah's average visual range today is less than one-sixth its natural range. Ozone concentrations cause foliar injury on sensitive plants and periodically exceed the new air quality standard for human health.”

3.4 Recreation Conditions, Issues and Concerns

As noted previously, a wide range of passive and active recreational activities are available within the boundaries of Shenandoah National Park. These include camping, picnicking, hiking, and fishing. The NPS regulates the conduct of all of these activities within the Park. Park staff did not comment on any problems associated with these activities at the time of the on-site visit.

■ 4.0 Planning and Coordination

4.1 Unit Plans

The current Park GMP was approved in 1983. Although Park staff expressed a desire to update this document, no funding is available for this activity. Related, more recent planning efforts such as the September 1998 *Resource Management Plan* and the 1997 *Strategic Park Management Plan* are seen as more relevant to the Park's current operations.

4.2 Public and Agency Coordination

Shenandoah National Park appears to have established very strong and supportive relationships with the adjacent private landowners, the local gateway communities and surrounding counties, and the Commonwealth of Virginia. While there appear to be opportunities for expanded coordination and communication to address common issues and concerns, no significant communication problems were identified.

However, it appears that a more proactive involvement by Park staff with ongoing local and regional planning efforts, of both a transportation and land use nature, would be greatly beneficial to all parties concerned. At the same time, it is acknowledged that staffing limitations will restrict the degree to which this expanded coordination can be achieved.

■ 5.0 Assessment of Need

5.1 Magnitude of Need

The potentials for ATS at Shenandoah National Park appear to be rather limited at this time. ATS potentials would most likely build upon existing services such as the visitor shuttle to and from Rapidan Camp.

5.2 Feasible Alternatives

There appear to be only a few feasible ATS alternatives that could be potentially implemented at Shenandoah National Park in the near term. These include the following:

- Expansion of the existing Rapidan Camp visitor shuttle operation from three days a week to five days a week. In acknowledgment of resource conservation and protection concerns, the number of tour trips operated should remain limited to the current level of two trips per day.
- Explore economic feasibility of a formalized NPS and concessionaire employee transportation program utilizing vans or small buses to connect adjacent communities with the Park. It is suggested that NPS staff investigate the possibilities for Virginia Department of Transportation (VDOT) and/or Virginia Department of Rail & Public Transportation (DRPT) staff to provide assistance with these efforts.
- Explore the economic feasibility of a seasonal ATS service to provide connections between the Park and the Shenandoah Valley and Piedmont regions for Park visitors. This service would facilitate interaction between the Park and the other attractions in the surrounding communities
- The expanded use of Intelligent Transportation System (ITS) technologies to provide enhanced visitor information should continue to be investigated by NPS staff in concert with VDOT and the other participants in the “Travel Shenandoah” program.

■ 6.0 Bibliography

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Virginia Polytechnic Institute and State University, Department of Forestry, *Shenandoah National Park: Economic Impacts and Visitor Perceptions*, 1992, October 1993.

■ 7.0 Persons Interviewed:

Robbie Brockwehl, Concessions Management Specialist, Shenandoah National Park, August 19-20, 1999

Thomas Christoffel, Executive Director, Lord Fairfax Planning District Commission, Front Royal, Virginia, August 19, 1999

Gregory Cross, Rural ITS Planning Services, Charlottesville, Virginia, August 19, 1999

Kimberley Fogle, Planning Director, Town of Front Royal, Virginia, August 19, 1999

Christi Gordon, Park Biologist, Shenandoah National Park, August 20, 1999

Ken Johnson, Criminal Investigator, Shenandoah National Park, August 20, 1999

Donald LaFever, EDA/Chamber of Commerce, Town of Front Royal, Virginia, August 19, 1999

Kathy Laskowski, Research Associate, Center for Transportation Research, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, August 19, 1999

Dennis McGinnis, Chief of Maintenance, Shenandoah National Park, August 20, 1999

Douglas K. Morris, Superintendent, Shenandoah National Park, August 20, 1999

Charles Newton, Park Engineer, Shenandoah National Park, August 19-20, 1999

Connie Rudd, Assistant Superintendent, Shenandoah National Park, August 20, 1999

Robert J. Slocum, Transportation Engineer, Staunton District, Virginia Department of Transportation, August 20, 1999

Michael R. Slowinski, General Manager, Parks and Resorts, ARAMARK Corporation, Luray, Virginia, August 19, 1999

Carl Tolley, Luray/Page County Chamber of Commerce, Luray, Virginia, August 19, 1999